

*Bos. V. N. S.*

# Entomologists' NEWSLETTER

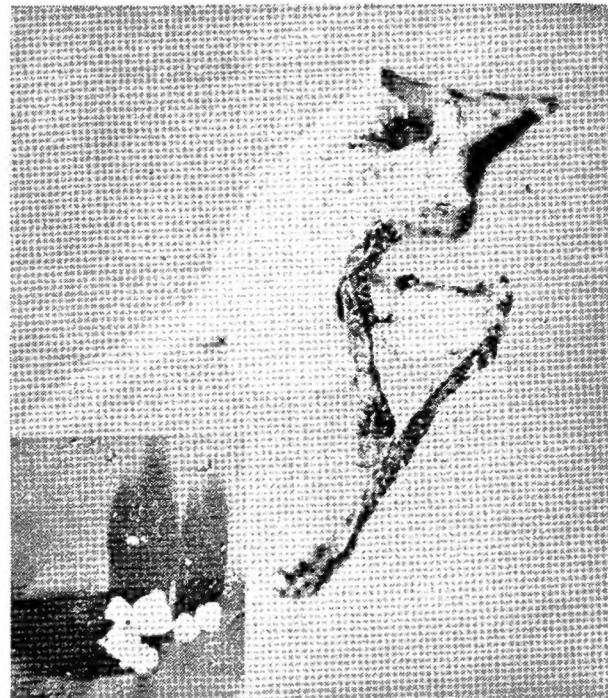
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**Typical hanging posture of diseased *Prodenia litura* larvae  
(Please refer to the article on page 39).**

*Issued by*  
**DIVISION OF ENTOMOLOGY**  
**INDIAN AGRICULTURAL RESEARCH INSTITUTE**  
**NEW DELHI-12.**

### Some More Appreciations

This type of information on various Pest Control is very much needed for scientific extension work in the field. I congratulate you and your colleagues for bringing out this useful publication...

P. M. Thomas,  
Regional Manager,  
The Food Corporation of India,  
C.T.O. Buildings, New Pusa,  
New Delhi-12.

I think the decision to bring out such a publication is a well thought one..... It answers to greatly felt need of the IARI Entomologists for a vehicle of expression..... I would like to be on your mailing list.

M. V. Venkatesh,  
Locust Entomologist,  
Field Station for Investigations  
on Locusts, Bikaner.

...You have done an excellent job in bringing out this much-needed monthly Newsletter. It would prove universally useful for the Entomological workers and for publicising latest findings of entomological research. Kindly keep this Station on the regular mailing list for the Entomologists' Newsletter.

J. S. Jawanda,  
Senior Horticulturist,  
Regional Fruit Research Station,  
Abohar (Punjab)

...I must congratulate you for issuing this Newsletter, as in my opinion, it will be very useful to entomologists.....I request you to include my name and of Dr. M.S. Chari..... in the mailing list.

H. K. Patel,  
Head, Deptt. of Entomology,  
Institute of Agriculture,  
Anand (Gujarat)

## **Need for Greater Dialogue**

There is urgent need for a serious discussion among entomologists and plant protection scientists about the strategy our country should adopt in the control of the pests and pathogens of our major crops. Dr. S. Pradhan and several other eminent entomologists have been advocating the development and deployment of integrated pest control systems, where, in addition to chemicals, genetic resistance, crop sanitation, and agronomic practices are all used in an appropriate combination. Not much progress has, however, been made in the development of such integrated pest control schedules. Now that multiple cropping practices are getting popular, the pest implications of crop rotations need to be clearly spelt out and such cropping sequences which are likely to add to our pest problems, should be severely discouraged or even banned. I also feel that entomologists should highlight the areas where compulsory crop sanitation measures, such as removal of dead cotton stalks, can be introduced with profit to our agricultural economy.

A matter for serious concern is the lack of a well-defined policy in the choice and use of pesticides. Endrin, aldrin and dieldrin and all organochlorine insecticides are gradually getting banned in several countries. The fact that there is scope for more discussion and communication among scientists working in crop production would be clear from the following example. Dr. S. K. Srivastava of Pantnagar (PANS, 16, 266, 2nd June, 1970) has drawn attention to the urgent need for controlling the use of certain insecticides. From the same University a publication entitled "Multiple Cropping in Tarai" (U.P. Agricultural University Research Bulletin, No. 6, 1969) has recommended the use of endrin in crops like soybean, maize, sugarcane, gram and rice. Do these differences in recommendations reflect different scientific viewpoints or do they reflect communication gaps? For insecticides, which are very persistent in soils and biological systems, the lethal dose could be about 5 mg/kg of body weight. Since most pesticides are lipophylic, care is particularly needed for the formulation of pest control schedules in oilseed crops.

An example of the concern in some developed nations about the careless use of pesticides in developing nations is provided by the

shifting agricultural policies in countries like Sweden. A few years ago, there was a serious debate on whether in view of the rising costs and in the light of the growing possibilities for importing food and feed from developing nations, Sweden should gradually abandon agriculture. Now, however, there is a view that Sweden should intensify rather than abandon agriculture because of the uncertainty of the quality, particularly with reference to pesticide residues, of the produce that can be imported from developing countries. If some of the export goals and possibilities for coarse grains, oilseeds, etc. are to be realised, we should quickly adopt regulated cropping systems based on scientific criteria.

Dr. Pradhan has often advocated the constitution of a Central Pesticide Release Committee, on the lines of the Central Variety Release Committee for new strains of economic plants. I strongly endorse this view and I feel that every day's delay in the establishment of such a Committee can do great harm to the development of a science-based agricultural system in our country.

I hope the Entomologists' Newsletter will become a forum not only for an informal exchange of useful information but more particularly for the fearless expression of views on important national, though controversial, issues.

M. S. Swaminathan  
*Director*  
Indian Agricultural Research Institute  
New Delhi-12

### **Some Physical Factors in Biological Speciation**

It is a common observation that high velocity winds caused by atmospheric depressions raise up a large number of living and non-living matter well up the ground level into the higher atmosphere. Likewise cyclonic storms on the seas also raise up a large number of pelagic forms of life. Among these the less massive ones appear to be kept buoyant by the high velocity upper air currents where they are subjected to cosmic or ultra-violet radiations, electro-magnetic fields between clouds, etc. for far longer duration than at lower levels. The mutagenic effects of such physical factors are now well known.

Mutations form the basis for speciation and organic evolution. That mutations are effected towards speciation mainly during meiotic divisions of cells to produce the gametes than during mitotic divisions which normally cause more of vegetative growth and differentiation towards phenotypic expressions of various organisms too is fairly well known. It is noteworthy in this connection that while entire forms of animal life are lifted up by winds, among the plant kingdom spores, winged fruits, comose seeds, leaves or even small twigs only are thus raised. Thus in the case of animals the meiotically dividing gonad cells have the chance of being subjected to the above mentioned physical factors of the higher atmosphere, whereas only the mitotically dividing cells of the already formed sporophyte at the most are thus acted on. This seems to make the great difference between the amount of speciation among the two organic kingdoms.

Observed facts in nature show the high preponderence of animal species over plant species. Further among the animals there appear to be definite correlations between the mass of individuals and the number of species under each taxon. Perhaps this bears out the validity of the above observations.

M. G. R. Menon

### **The Occurrence of the North Eastern Race of the Common Birdwing in the South**

The Common Birdwing, *Troides helena* (Linnaeus), the largest of all Indian Butterflies, is known to exist as two races, the North Eastern and the Southern. The former is believed to be confined to Sikkim, Assam, and Northern Burma and the latter to the Western Ghats from Bombay to Travancore. But during entomological collections in the hills near Palghat during August, 1970, the North Eastern Race could be captured along with the Southern form, both being distinguishable in the field by the hindwing pattern.

K. Gopinath\*

### **New Records of Phytophagous Mites from Delhi**

*Petrobia harti* (Ewing) (Tetranychidae) and *Brevipalpus phoenicis* (Geijskes) (Tenuipalpidae) have been found occurring in large numbers on the lower surface of the leaves of *Oxalis corniculata* and in the grooves of the leaf petioles and tender stems of rose plants respectively.

Swaraj Ghai & M. G. R. Menon

\*Lecturer in Zoology, University of Mysore, Manasa Gangotri, Mysore-6.

## **'Bajra' shootfly becoming a major pest**

The 'bajra' shootfly, *Atherigona approximata* Malloch, which was recorded as a minor pest from Coimbatore has assumed the status of a major pest in Tamil Nadu and Gujarat. Recently it has also been observed in Punjab. Surprisingly, intensive surveys carried out in Delhi and some parts of Rajasthan did not reveal the presence of the pest in these areas during the 'Kharif' season.

In trials carried out at Coimbatore, pre-sowing soil application of phorate, disulfotan, aldicarb and arpacarb @ 3 kg/ha was found to be effective against the pest.

M. G. Jotwani & V. S. Singh

## **Increasing range of distribution of *Antherigona naquii* Steyskal as a pest of wheat**

*A. naquii* is known to be a pest of wheat causing considerable damage in West Pakistan but its record as a wheat pest in India is not known. Recently, this pest has been observed in Udaipur causing 9 to 12 per cent damage to wheat seedlings.

G. G. Kundu & Prem Kishore

## **Screening of sorghum varieties against bird damage**

Sorghum varieties, viz., AKS-614, BR-60, Bird GO, GA-615 (obtained from U.S.A.) which are claimed to be bird-resistant, were screened and compared with common high yielding hybrids CSH 1 and CSH 2 for resistance to bird damage. The average percentage damage to earheads by birds (mainly house sparrows) was found to be 29.92, 15.94, 12.82 and 19.54 in exotic lines as compared to 72.85 and 85.50 in CSH 1 and CSH 2 respectively. Thus it is indicated that the first four varieties afforded significant protection against bird damage in comparison to the two hybrids.

Y. P. Beri, M. G. Jotwani & B. G. Srivastava

## **Control of the cotton jassid, *Amrasca devastans* (Distant)**

Field trials with endosulfan, monocrotophos, endrin, phosphamidon, malathion, carbaryl and mixtures of methyl parathion with DDT, toxaphene and carbaryl against *A. devastans* were conducted. The sprayings were done with gaps of 15 days, commencing 8 weeks after sowing. The data recorded from 10 leaves showed a significant decrease in the jassid population in plots sprayed with endosulfan \*(1, 2, 3) + monocrotophos (4, 5, 6) or monocrotophos 1, 3) + endrin (2, 4, 5, 6) or phosphamidon (1, 2, 3) + DDT with toxaphene (4, 5, 6) or malathion (1, 2, 3) + endrin (4, 5, 6). An increase in yield of cotton of 249, 212, 133 and 120 per cent was obtained in the above four treatments, respectively over the control. The former two treatments, namely, endosulfan (1, 2, 3) + monocrotophos (4, 5, 6) or monocrotophos (1, 3) + endrin (2, 4, 5, 6) confirmed their superiority by an increase in yield of cotton by 275 and 214 per cent and a significant decrease in jassid population, over the control during two years 1969 and 1970 trials at I.A.R.I. New Delhi.

R. A. Agarwal, K. N. Katiyār & D. S. Bisht

## **Nuclear polyhedrosis of *Prodenia litura* Fabricius**

The virus disease is normally present to the extent of 41.0 per cent in the laboratory culture of *P. litura*. The incidence of the disease increased to 70.6 per cent as a result of feeding the larvae on old and hard castor leaves. The polyhedra (cover page photograph) are irregular in shape and measured 0.6 to 2.0 microns in diameter. The average number of polyhedra per larva was  $1.9644 \pm 0.60 \times 10^6$ . The polyhedra were harvested from the dead and diseased larvae by allowing them to putrefy in water.

N. Ramakrishnan & V. M. Pawar

## **Molecular weights of esterases in the larvae of *Chilo zonellus* Swinhoe**

Molecular weights of the carboxylic esterases hydrolysing indo-phenyl acetate (IPA) in the 5th instar larvae of *Chilo zonellus* were determined by using gel chromatography on Sephadex G-200. The

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\*1, 2, 3, 4, 5 and 6 indicate the serial of sprayings

results showed that there are three IPA hydrolysing esterases in *C. zonellus* having molecular weights of above 500,000, 200,000 and 90,000. These esterases occur most probably as multimolecular forms and that 80% of the activity was associated in the form having mean molecular weight of about 200,000.

K. N. Mehrotra & T. N. A. Farooqi

### **Visit abroad**

Shri G. R. Sethi, Radiation Entomologist, who proceeded to U.K. on 5-7-70 under the IAEA Fellowship (training programme) returned on 27-3-71, after completing the assignment at Rothamsted Experimental Station, Harpenden, U.K. He also visited the Laboratory of Insecticides Wageningen (the Netherlands) and the International Atomic Energy Agency Laboratories at Siebersdorf, Vienna (Austria). He participated in the International Seminar on Sterility principle for insect pest control or eradication held at Athens (Greece) and presented a paper on "The feasibility of controlling stored grain pests by the sterile male technique".

### **International workshops on the control of sorghum shootfly and sorghum in the 1970's**

The workshops are being organised under the joint auspices of the Indian Council of Agricultural Research, the Andhra Pradesh Agricultural University and the Rockefeller Foundation at Hyderabad (India) from 20th to 30th October 1971. The workshops will be held in sequence, the first four days will be devoted to sorghum shootfly and the next four days to sorghum in the 1970's. A two day field trip to intensive sorghum growing areas is also proposed.

Editors